

REMARKS

Claims 1-22, 24-26, and 28-31 are pending in the application. By amendment above, applicants have amended Claims 1, 3, 8, 24, 25, 26, 28, 29, and 30. In addition, applicants have added new Claim 32.

Independent Claims 1, 24, 25, and 26 have been amended to recite that the recessed microstructures include a sidewall, bottom surface, and an opening opposite the bottom surface.

In addition, Claims 1, 3, 8, 24, 25, 26, 29, and 30 have been amended to correct minor errors in the claim language.

Claims 25, 26, and 28 have been amended to recite that the recessed microstructures are nominally filled during the first time period.

New Claim 32 recites that during the first time period, metal ions are deposited on the surface and within the recessed microstructures.

Claims 1-5, 11, 13, 14, 22, 24, 25, and 28-31 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,396,467 to Anthony. For the following reasons, applicants respectfully traverse this rejection.

The applicants thank the Examiner for his courtesy during the telephonic interview on July 28, 2005.

Independent Claims 1, 24, and 25 each recite that the recessed microstructures include a sidewall, bottom surface, and an opening opposite the bottom surface. As discussed with the Examiner during the telephonic interview, the Anthony reference does not disclose such recessed microstructures having a bottom surface, and, for this reason, Anthony does not disclose the subject matter of independent Claims 1, 24, and 25. Accordingly, the rejection of independent Claims 1, 24, and 25 as anticipated by Anthony should be withdrawn. For the same reason, the rejection of Claims 2-5, 11, 13, 14, and 22 which depend from Claim 1 and, thus, include all of

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the limitations of Claim 1, are also novel over Anthony and the outstanding rejection of these dependent claims should be withdrawn.

Independent Claim 28 and Claims 29-31 which depend from independent Claim 28 are novel over Anthony because Anthony does not describe a controller for controlling a power supply a level of reverse electroplating power supplied during the second time period to control the deposition of further metal ions over the recessed microstructures relative to the remainder of the workpiece surface. For the foregoing reasons, applicants respectfully request withdrawal of the outstanding rejection of Claims 1-5, 11, 13, 14, 22, 24, 25, and 28-31 under 35 U.S.C. § 102(b) as being anticipated by Anthony.

Claims 1, 8, and 13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,219,787 to Carey et al. For the following reasons, applicants respectfully traverse this rejection. Independent Claim 1 has been amended to incorporate the subject matter of dependent Claim 2 which is novel over Carey et al. For this reason, applicants assert that the outstanding rejection of independent Claim 1 as being anticipated by Carey et al. should be withdrawn. In view of the dependence of dependent Claims 8 and 13 from independent Claim 1, the outstanding rejection of dependent Claims 8 and 13 as being anticipated by Carey et al. should also be withdrawn.

New dependent Claim 32 recites that during the first time period, metal ions are deposited on both the surface of the workpiece and within the recessed microstructures. This feature is not disclosed or suggested by Anthony. Anthony discloses the formation of metal features within holes 20; however, the surface of the body in which the holes are formed includes an insulating layer 18 and thus, Anthony does not teach a process wherein metal ions are deposited both on the surface of the workpiece and within recessed microstructures.

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Dependent Claims 6, 7, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Anthony. Dependent Claims 6, 7, and 12 depend from independent Claim 1 and are patentable over Anthony for the reasons given above. Namely, Anthony does not disclose or suggest recessed microstructures that include a bottom surface. For these reasons, applicants respectfully request withdrawal of the outstanding rejection of Claims 6, 7, and 12 under 35 U.S.C. § 103(a).

Dependent Claims 15-21 and independent Claim 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anthony in view of U.S. Patent No. 3,770,598 to Creutz and U.S. Patent No. 5,223,118 to Sonnenberg et al. For the following reasons, applicants respectfully traverse this rejection. Dependent Claims 15-21 ultimately depend from independent Claim 1, and, therefore, for the reasons given above with respect to Claim 1 and dependent Claims 6, 7, and 12, and dependent Claims 15-21 are novel and nonobvious over Anthony. The Creutz and Sonnenberg et al. references do not teach or suggest what is missing from Anthony, i.e., recessed microstructures that include a bottom surface.

Independent Claim 26 is nonobvious over Anthony in view of Creutz and Sonnenberg et al. for the following reasons. Like independent Claim 1, independent Claim 26 recites a process that deposits metals within recessed microstructures that include a bottom surface. As noted above, Anthony does not teach or suggest recessed microstructures that include a bottom surface. Creutz and Sonnenberg et al. do not teach or suggest what is missing from Anthony.

Claims 1, 3-7, 11-14, 22, 25, and 28-31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,219,787 to Carey et al. in view of Anthony. For the following reasons, applicants respectfully traverse this rejection. As indicated above, independent Claim 1 has been amended to incorporate the subject matter of dependent Claim 2

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which has not been rejected over a combination of Carey et al. in view of Anthony. Accordingly, independent Claim 1, as amended, and Claims 3-7, 11-14, and 22 that depend from independent Claim 1, define nonobvious subject matter over Carey et al. in view of Anthony.

Independent Claim 25 is nonobvious over Carey et al. in view of Anthony for the following reasons. Independent Claim 25 recites: "supplying electroplating power between the anode and the surface of the workpiece during a second time period in a series of forward plating power pulses interspersed with reverse plating power pulses to control the deposition of further metal ions over the recessed microstructures relative to the remainder of the surface." This limitation is also recited in dependent Claim 2, which was not rejected over Carey et al. in view of Anthony. Accordingly, applicants assert that the subject matter of independent Claim 25 is nonobvious over Carey et al. in view of Anthony.

Independent Claim 28 has been amended to incorporate the subject matter of Claim 2 relating to the first time period and the second time period. Accordingly, independent Claim 28 and Claims 29-31 which depend from independent Claim 28, define nonobvious subject matter in view of Carey et al. and Anthony. For the foregoing reasons, applicants respectfully request withdrawal of the outstanding rejection of Claims 1, 3-7, 11-14, 22, 25, and 28-31 under 35 U.S.C. § 103(a) as being unpatentable over Carey et al. in view of Anthony.

Dependent Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Carey et al. in view of U.S. Patent No. 2,853,443 to Harrover, Jr. or U.S. Patent No. 2,451,341 to Jernstedt. For the following reasons, applicants respectfully traverse this rejection.

Dependent Claims 9 and 10 depend from independent Claim 1, and, therefore, include the limitations that have been incorporated into Claim 1 from dependent Claim 2. Neither the Harrover, Jr. or Jernstedt references teach or suggest the limitations regarding the first time

period and the second time period recited in independent Claim 1, as amended, and, therefore, dependent Claims 9 and 10 are nonobvious over Carey et al. in view of Harrover, Jr. or Jernstedt. Accordingly, the outstanding rejection of dependent Claims 9 and 10 as being obvious over Carey et al. in view of Harrover, Jr. or Jernstedt should be withdrawn.

Claims 15-21 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Carey et al. in view of Creutz and Sonnenberg et al. For the following reasons, applicants respectfully traverse this rejection. Claims 15-21 depend from independent Claim 1 which has been amended to incorporate the limitations of dependent Claim 2 regarding the first time period and the second time period. Creutz and Sonnenberg et al. do not supply the teaching that is missing from Carey et al. regarding the first time period and the second time period. Accordingly, the subject matter of Claims 15-21 is nonobvious over Carey et al. in view of Creutz and Sonnenberg et al.

Independent Claim 26 recites the limitation present in Claim 2 regarding the recessed microstructures being nominally filled during the first time period. As noted above, Carey et al. does not disclose nominally filling recessed microstructures during a first time period. This feature of Claim 26 is not disclosed or suggested by Creutz and Sonnenberg et al., and, for this reason, the subject matter of independent Claim 26 is nonobvious over Carey et al. in view of Creutz and Sonnenberg et al. Accordingly, the outstanding rejection of Claims 15-21 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Carey et al. in view of Creutz and Sonnenberg et al. should be withdrawn.

For the foregoing reasons, applicants assert that the subject matter of the pending claims is novel and nonobvious over the applied references and that withdrawal of each of the outstanding rejections is appropriate. If the reviewing party has any questions regarding the

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above, he is invited to call applicants' attorney at the number listed below so that any outstanding issues can be resolved in a timely and efficient manner.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

Date: 9/14/05 Shannon L. H.

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